

WHAT IS CLAIMED IS:

1. A method comprising:
 - transmitting a medium reservation request message to initiate training and to request a medium reservation;
 - receiving a medium reservation reply message granting a medium reservation request and providing training feedback; and
 - selecting at least one data transmission parameter based on the received training feedback.
2. The method of claim 1 and further comprising transmitting data according to the at least one data transmission parameter.
3. The method of claim 1 wherein the medium reservation request message includes training information.
4. The method of claim 3 wherein the training information comprises a training sequence.
5. The method of claim 1 wherein the training feedback comprises information from the group comprising:
 - feedback describing at least one measured transmission condition; and

feedback specifying at least one data transmission parameter to be used for transmitting data.

6. The method of claim 5 wherein the feedback describing at least one measured transmission condition comprises at least one from the group comprising:

- a measured signal to noise ratio;
- a presence of errors or not in received training information or other information;
- a number of errors detected;
- a bit error rate or packet error rate; and
- a measured signal strength.

7. The method of claim 6 wherein the measured transmission condition is measured on a per subcarrier basis.

8. The method of claim 6 wherein the measured transmission condition is measured on a per antenna basis.

9. The method of claim 1 wherein the selecting at least one data transmission parameter comprises selecting a data transmission parameter from the group including:

- a data rate;

a modulation scheme;
a coding rate;
use and/ or type of interleaving; and
transmission power.

10. The method of claim 9 wherein the selected data transmission parameter is selected on a per subcarrier basis.

11. The method of claim 1 and further comprising obtaining access to a wireless transmission medium prior to the transmitting a medium reservation request message.

12. The method of claim 1 wherein the obtaining access comprises performing one from the group including:
obtaining access to a wireless medium using a polling access technique;
and
obtaining access to a wireless medium using a contention based access technique.

13. The method of claim 1 and further comprising:
receiving the medium reservation request message;
measuring a transmission condition in response to the medium reservation request message; and

transmitting the medium reservation reply message to grant the medium reservation request, the medium reservation reply message including training feedback.

14. The method of claim 13 wherein the measuring comprises measuring a transmission condition based on training information provided in the medium reservation request message.

15. The method of claim 13 wherein the medium reservation reply message includes training feedback, the training feedback comprising at least one of:

feedback describing at least one measured transmission condition; and
feedback specifying at least one data transmission parameter to be used for transmitting data.

16. The method of claim 1 wherein at least one of the medium reservation request message and the medium reservation reply message include a duration field to specify a duration of the requested medium reservation.

17. The method of claim 1 wherein the medium reservation request message comprises a request-to-send type message and which also initiates a receiving station to measure a transmission condition for training.

18. The method of claim 1 wherein the request-to-send type message that also includes training information.

19. The method of claim 1 wherein the medium reservation reply message comprises a clear-to-send type message that also includes training feedback.

20. The method of claim 1 and further comprising sending data via the reserved medium according to the at least one selected transmission parameter.

21. A method comprising:
receiving at a first station a medium reservation request message sent from a second station;
measuring a transmission condition in response to the medium reservation request message; and
transmitting a medium reservation reply message from the first station to the second station, the medium reservation reply message granting the medium reservation request from the second station and including training feedback to be used by the second station to select or adapt at least one transmission parameter.

22. The method of claim 21 and further comprising the second station selecting at least one data transmission parameter based on the received training feedback.

23. The method of claim 21 wherein the training feedback comprises at least one of:

feedback describing at least one measured transmission condition; and
feedback specifying at least one data transmission parameter to be used by the second station for transmitting data to the first station.

24. The method of claim 21 wherein the receiving at a first station a medium reservation request message comprises receiving at a first station a medium reservation request message sent from a second station, the medium reservation request message including training information.

25. The method of claim 24 wherein the measuring comprises measuring a transmission condition based on the training information in response to the medium reservation request message.

26. An apparatus comprising a processor and a wireless transceiver, the apparatus adapted to send a medium reservation request message via a wireless link to a first station to initiate training and to request a medium reservation, the apparatus further adapted to select at least one data

transmission parameter based upon training feedback included within a medium reservation reply message received from the first station.

27. The apparatus of claim 26 wherein the medium reservation request message and the medium reservation reply message each comprise a duration field indicating a duration of the requested medium reservation.

28. The apparatus of claim 26 wherein the apparatus is adapted to send a medium reservation request message via a wireless link to a first station to initiate training and to request a medium reservation, the medium reservation request message including training information to allow the first station to measure a transmission condition.

29. The apparatus of claim 26, wherein the wireless system further comprises a memory coupled to the processor, and an antenna coupled to the wireless transceiver.

30. An apparatus comprising a processor and a wireless transceiver, the apparatus adapted to receive a medium reservation request message via a wireless link from a first station, the apparatus further adapted to measure a transmission condition and send a medium reservation reply message to the first station, the medium reservation reply message granting the requested medium

reservation and including training feedback to allow the first station to select at least one transmission parameter.

31. The apparatus of claim 30 wherein the medium reservation request message includes training information, the apparatus adapted to measure a transmission condition based on the received training information.

32. A method of transmitting information between first and second wireless stations, the method comprising:

a training phase, the training phase including sending a medium reservation request message from the first station to the second station to request a medium reservation, measuring a transmission condition in response to the medium reservation request message, and sending a medium reservation reply message from the second station to the first station to grant the requested medium reservation and providing training feedback, the second station selecting at least one data transmission parameter based upon the received training feedback; and

a data phase, where at least one data message is sent from the first station to the second station via the reserved medium according to the selected data transmission parameter.

33. The method of claim 32 wherein the medium reservation request message and the medium reservation reply message include a duration field indicating a duration of the requested medium reservation.

34. The method of claim 32 wherein the medium reservation request message and the medium reservation reply message comprise legacy-compatible RTS and CTS messages, respectively.

35. A method of transmitting information between first and second wireless stations, the method comprising:

performing a training phase including an exchange of medium reservation messages between the first and second stations to reserve a medium and to select at least one data transmission parameter, at least one of the medium reservation messages including a duration field indicating a duration of the medium reservation;

performing a first data phase including sending data from the first station to the second station according to the transmission parameter selected during the training phase;

performing a second data phase without first repeating the training phase, the second data phase comprising:

transmitting a protection portion from a first station to the second station, the protection portion including a duration field indicating a duration of a reserved medium; and

transmitting data from the first station to a second station according to the at least one transmission parameter.

36. A method comprising:
 - selecting at least one data transmission parameter;
 - transmitting a protection portion from a first station to the second station, the protection portion including a duration field indicating a duration of a reserved medium; and
 - transmitting data from the first station to a second station according to the at least one selected transmission parameter.